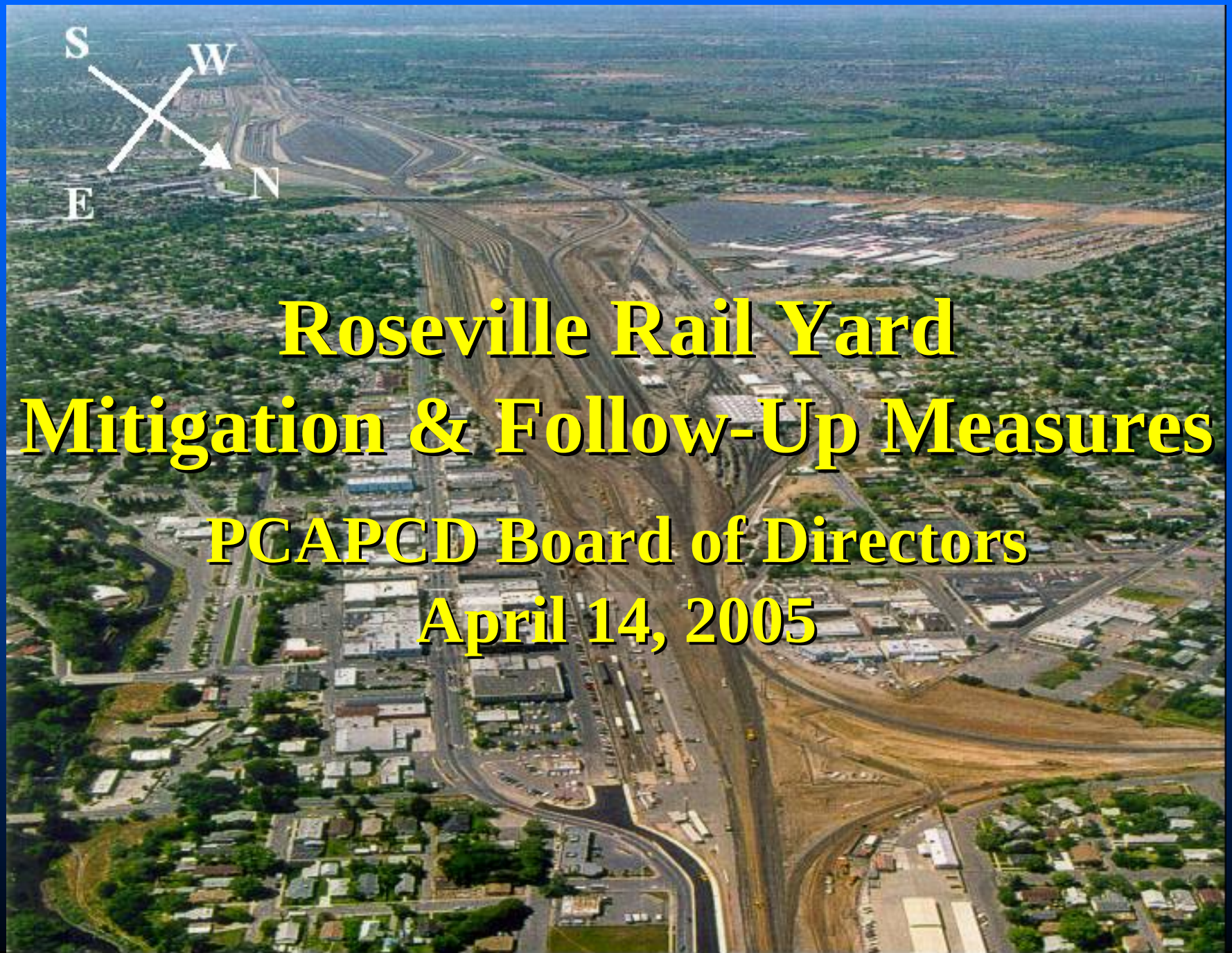



# Roseville Rail Yard Mitigation & Follow-Up Measures

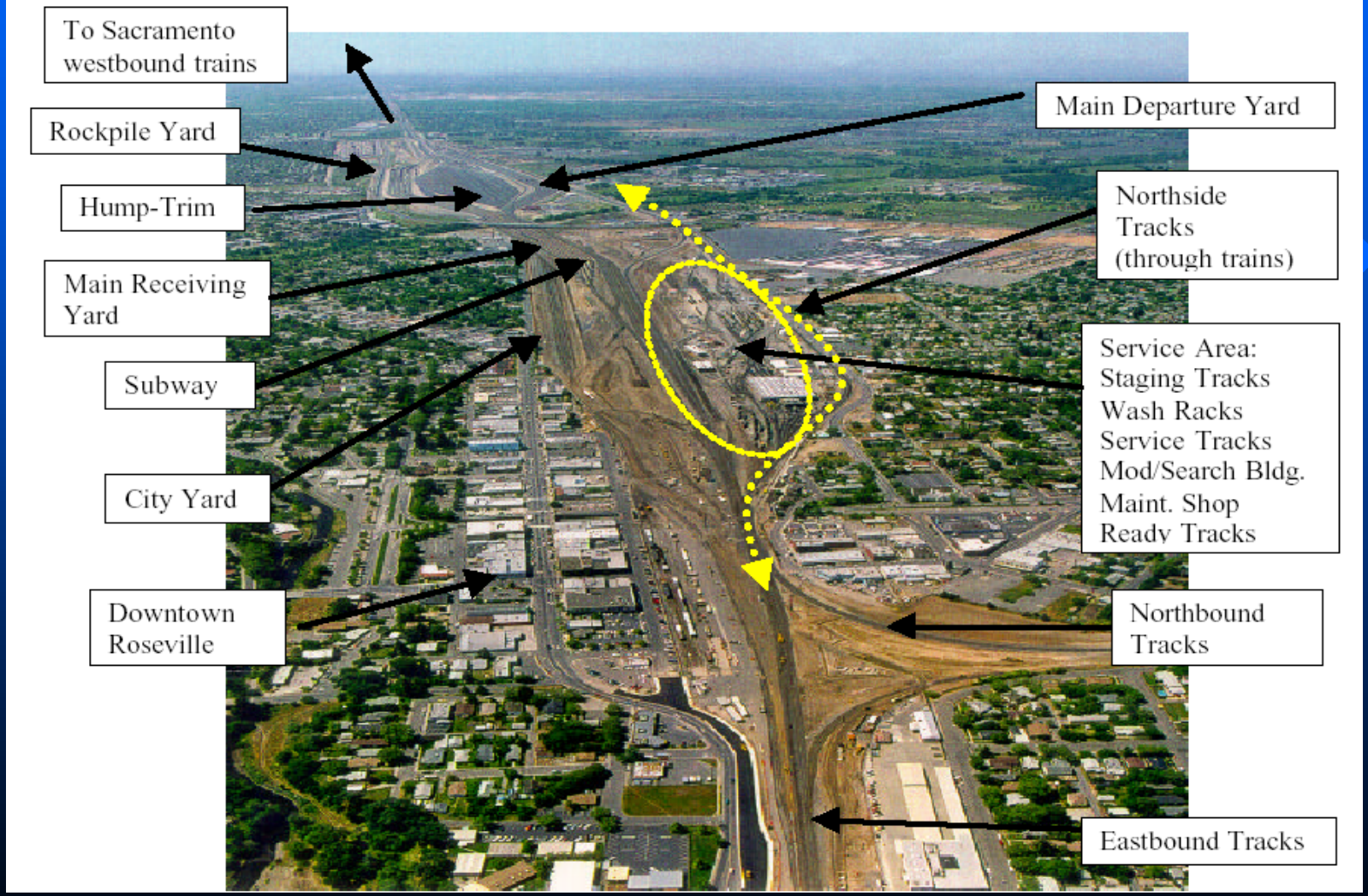
## PCAPCD Board of Directors

## April 14, 2005

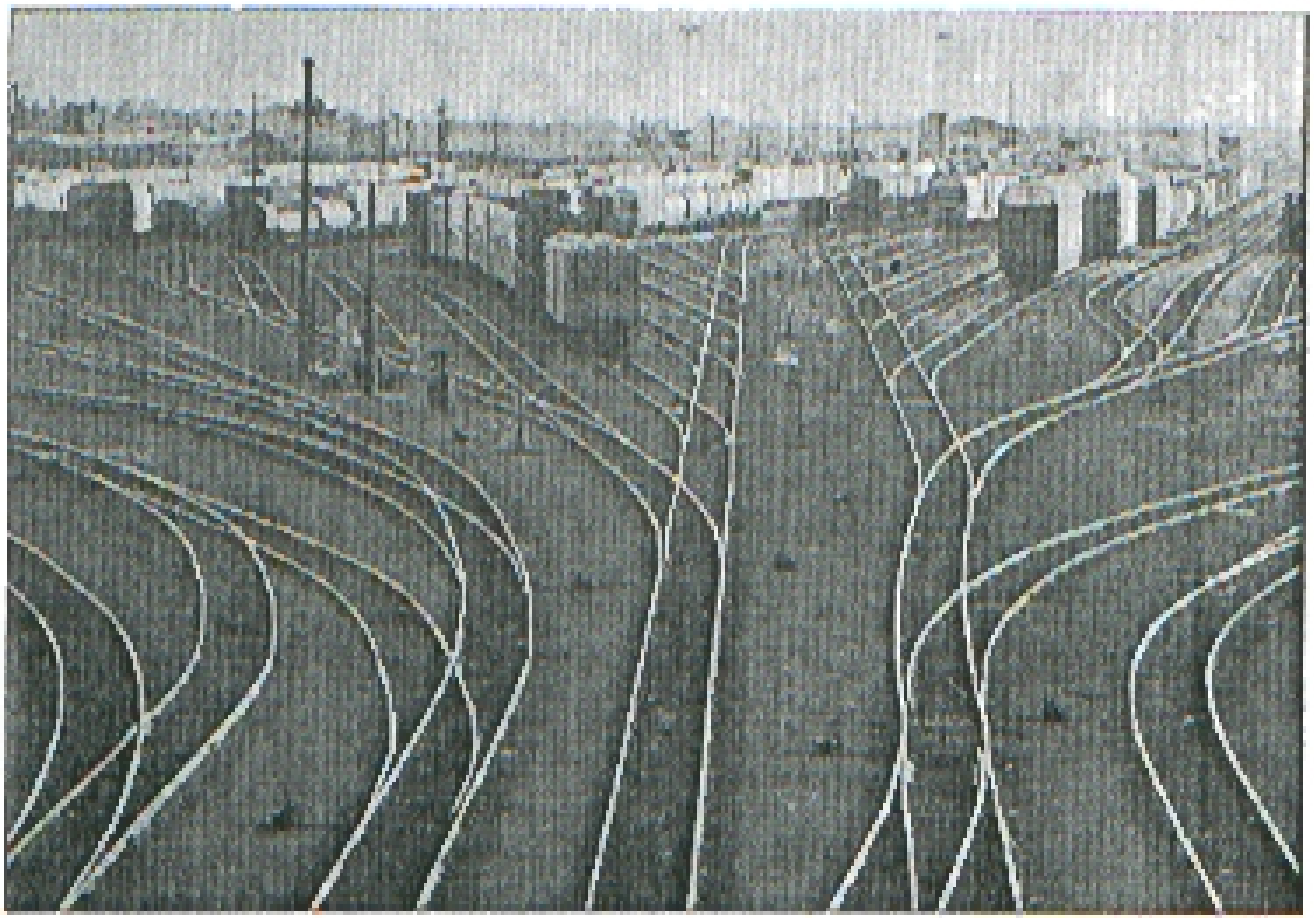
# Roseville Rail Yard in 1946

# Layout of Roseville Rail Yard

Figure II.1: Aerial Photo of J.R. Davis Yard



# Rail Traffic Is UP!



Business has picked up for Roseville's Union Pacific railyard (shown here in a 1996 file photo), a major switching hub for moving goods around the country

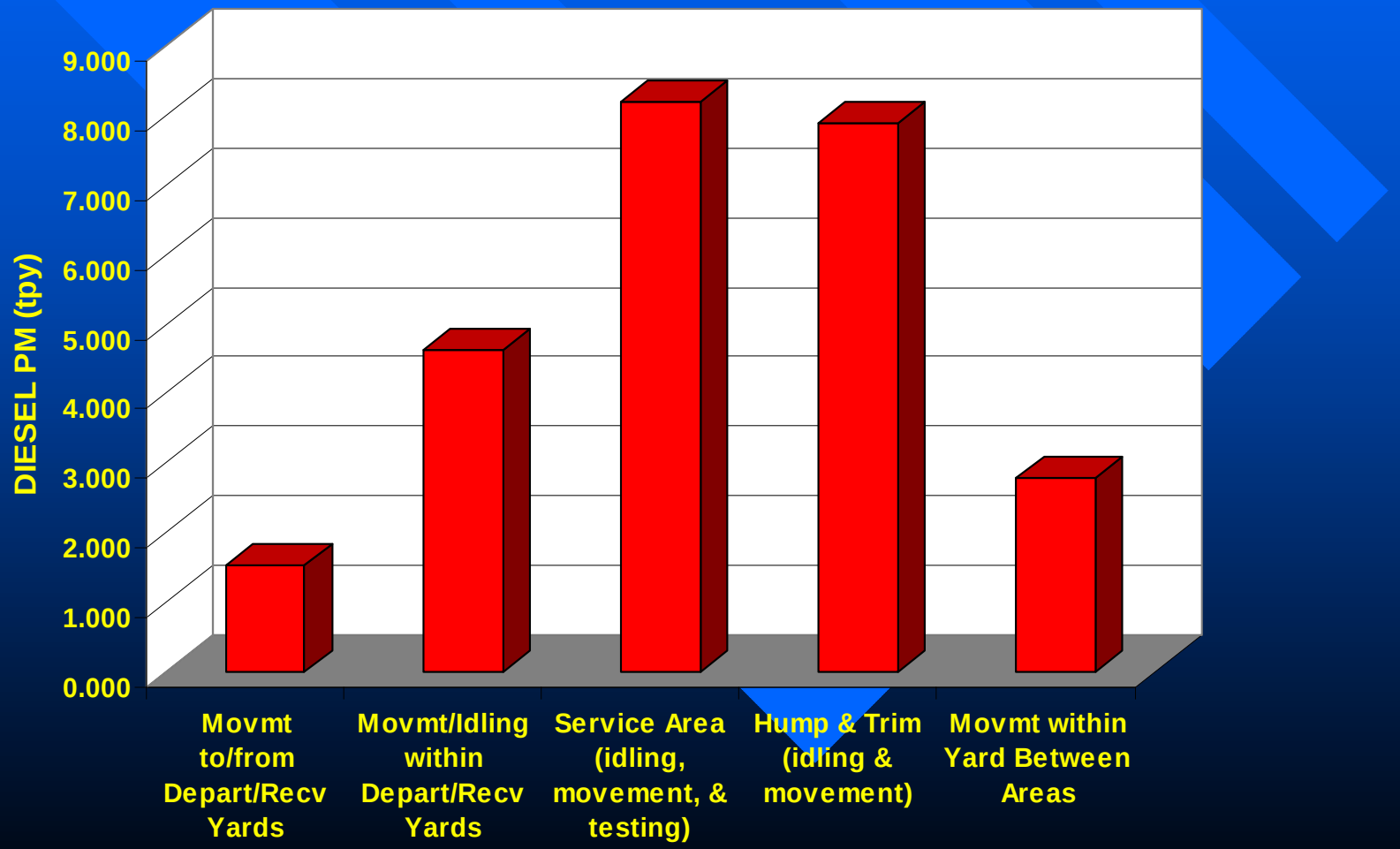
DENNIS McCOY / SACRAMENTO BUSINESS JOURNAL

**"In 1999, when Union Pacific opened its new yard in Roseville, 60 trans passed through daily. Now it's up to 70. Each train has 100 to 130 cars." said by John Bromley, Union Pacific Omaha-based spokesman.**

# Diesel PM Emission Inventory at the Roseville Rail Yard

- Estimated 22-25 tons of diesel PM in 2000
- Monthly and hourly emissions fairly constant
- Locomotive movement, idling, testing responsible for about 50%, 45%, and 5% of emissions, respectively

# Contribution of Diesel PM by Area and Activity



# Health Risk Assessment Results

- Risks are depicted as isopleths overlaid on a regional map
- Near source risk is high by two areas
  - -nearby the *Service Track* and *Hump and Trim* areas
- Elevated concentrations and risks extend over a very large area

# Completed Objectives

- **Risk Assessment and Briefing have been provided to PCAPCD Board and the public in October, 2004**
  - -provide an accurate assessment
  - -provide full disclosure to the public
  - -provide a factual presentation of the assessment to the public
- **Possible mitigation measures have been identified for yard risk reduction**
  - -locomotive reduction mitigation matrix created

# Objectives that are on-going

- Develop and implement a DPM Risk Reduction Plan with UPRR
  - -an agreement signed between UPRR and PCAPCD on Dec. 9, 2004
- Follow-up the analytical assessment with an air monitoring program

# Agreement Between UP and PCAPCD

- **Mitigation Plan**
  - -reducing additional 10% of DPM emissions from rail yard over next three years (2005~2007)
  - -UPRR indicates they have reduced emissions by 15% since the initiation of the Risk Assessment in 2000
- **Grant Program**
  - -providing grants at least $150,000 over next three years to achieve one ton DPM emissions reduction from other sources of background emissions in Roseville area
- **Monitoring Plan**
  - -providing at least $100,000 to monitor DPM emissions from the rail yard

# Mitigation Plan Focuses

- **Idling reductions**
  - **-hardware**
  - **-operations/policy**
- **Low-sulfur diesel fuel for intrastate switchers and locomotives**
- **Switcher fleet replacement/upgrade**
- **Emission control from service test & repair area**

# Idle Reductions

- **Hardware**

  -21 Switchers were installed with Smart Start Technology to reduce idling emissions

  -Locomotives are automatically shut down when idling for more than 10 to 15 minutes

- **Operations/Policy**

  -UPRR has implemented a shut down policy to reduce unnecessary idling

# Smart Start Unit Installed inside the Locomotive Cab



# CARB Diesel Fuel Requirement

- **Effective on January 1, 2007**
  **-require low-sulfur diesel fuel (15 ppm)**
- **Intrastate locomotives (operating 90% or more within California)**
- **Targets: Switchers & Passenger trains operating within California**
- **Anticipate emission reduction per engine:**
  **-PM 14%**
  **-NOx 6%**

# Switcher Fleet Replacements

- **$500,000 in Moyer Funds from ARB's set aside amount to be applied to switcher upgrade**
  - **-application due 4/18/05**
  - **-concept is for truck-engine switcher**
- **Proposed project requires ARB approval before it can proceed**
- **Concept is to upgrade switcher fleet via use of lower emission locomotives as soon as possible**

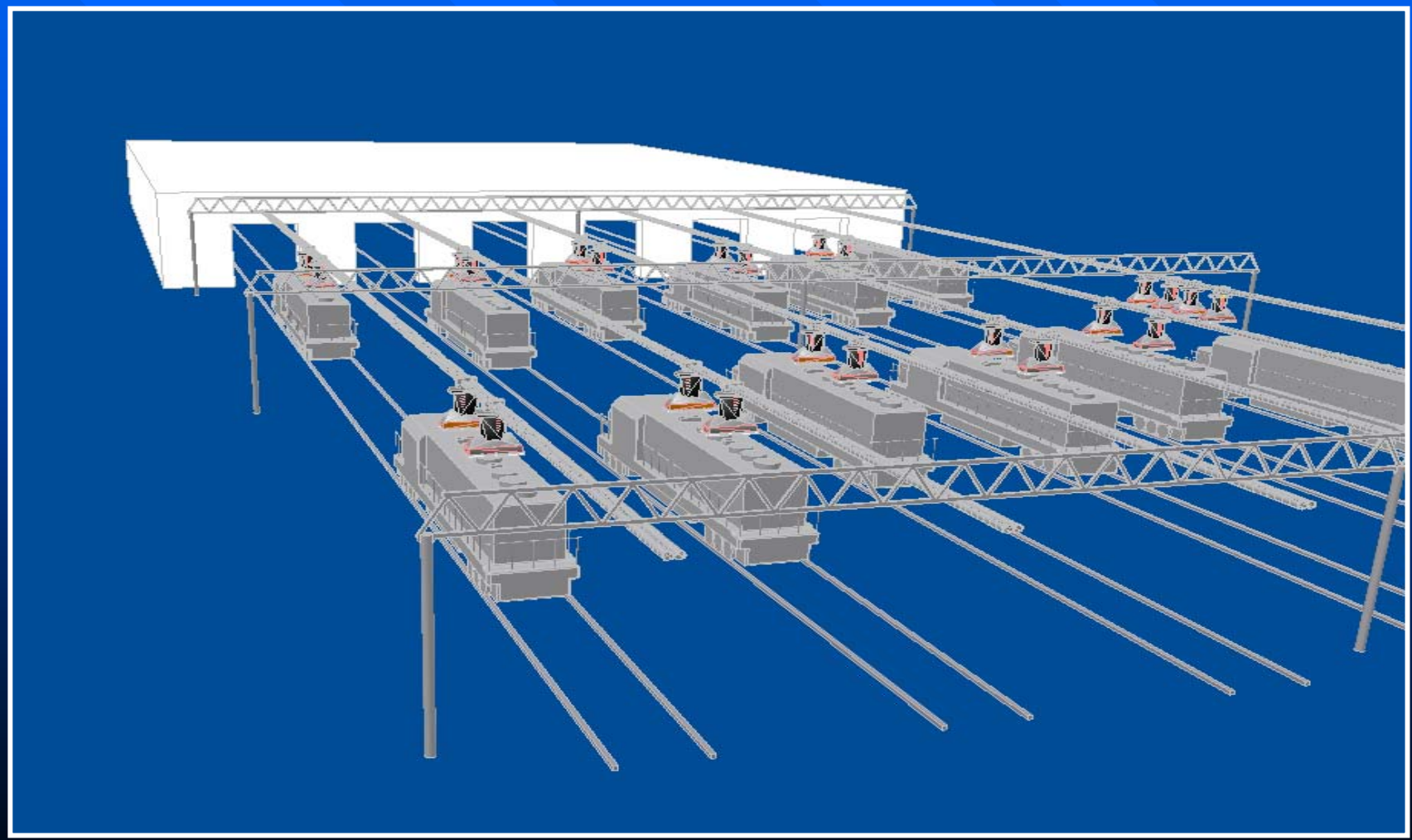
# Proposal Submit to West Coast Diesel Collaborative

- EPA Grant Program
- Focusing to reduce DPM emissions from maintenance yard
- A “Hood” proof-of-concept demonstration of an advanced locomotive emissions control system (ALECS)
- PCAPCD/SMAQMD/UPRR/ACTI Team

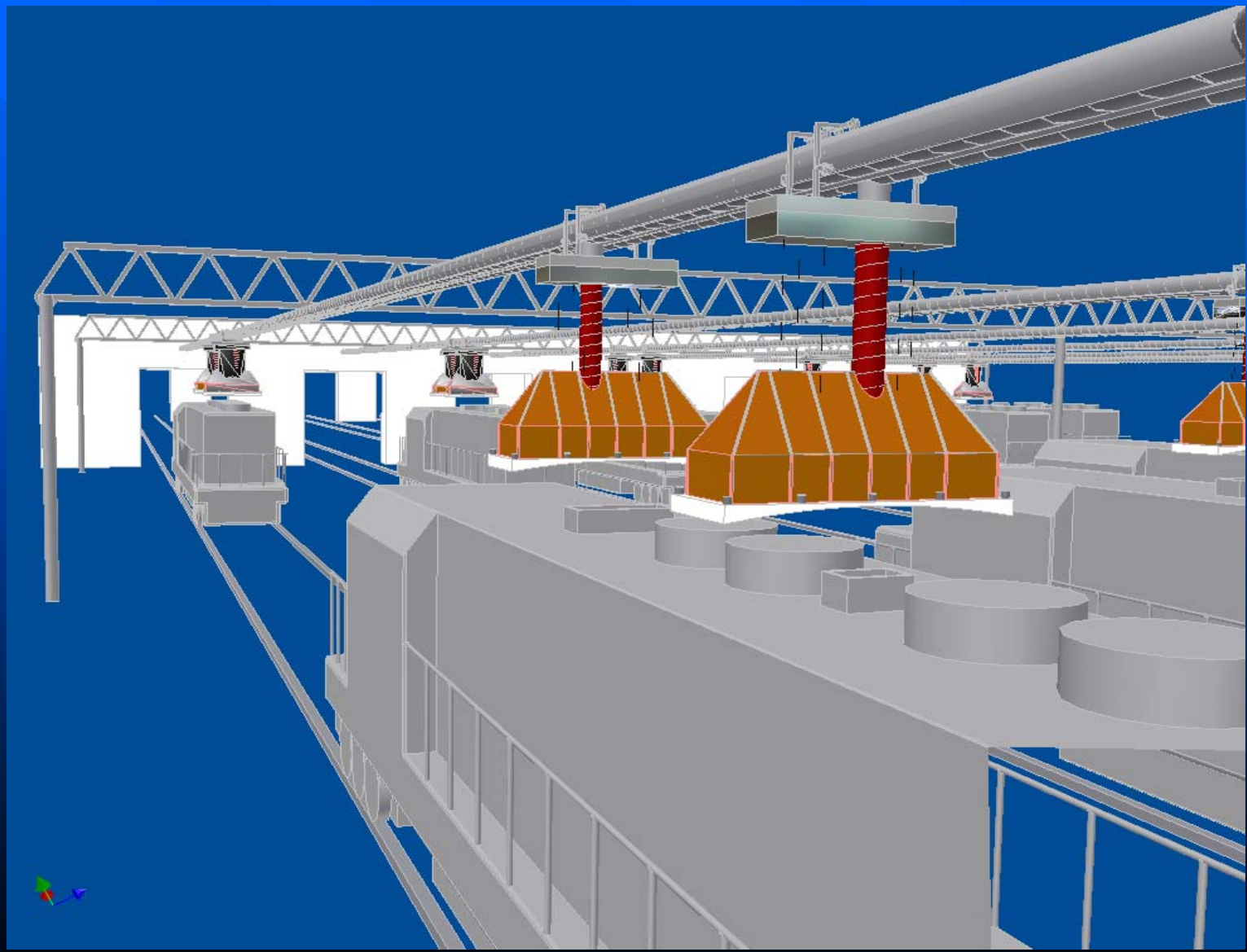
# Regional Projects in more detail...

- Locomotive Emissions Hood
  - Tom Christofk, Placer County
  - Demonstration that a single set of emissions control equipment in an exhaust stack could simultaneously treat up to 10 stationary locomotives (idling or undergoing testing)
  - PM, NOx, SOx and VOC reductions

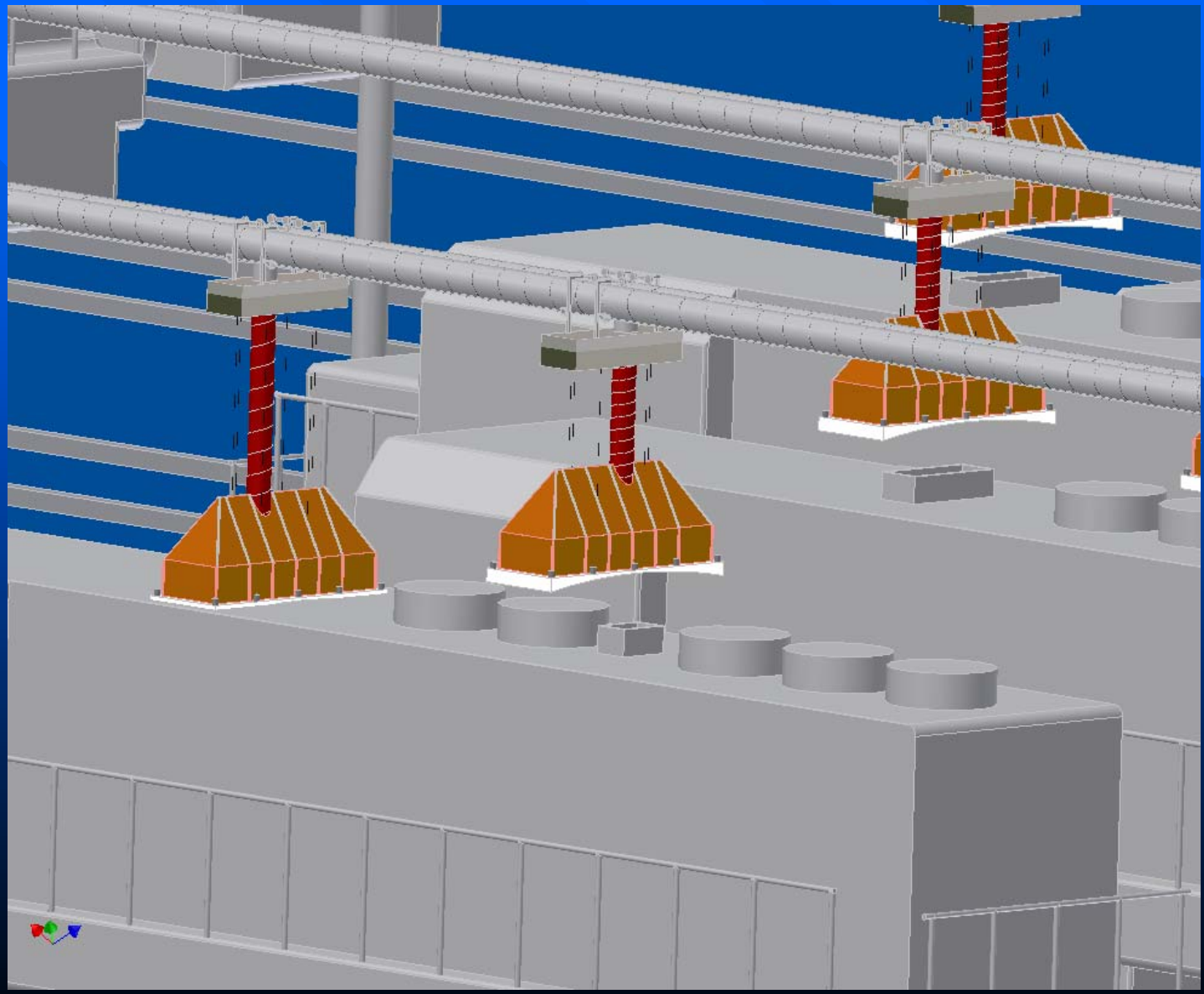
# Concept of ALECS at Service Test and Repair Area



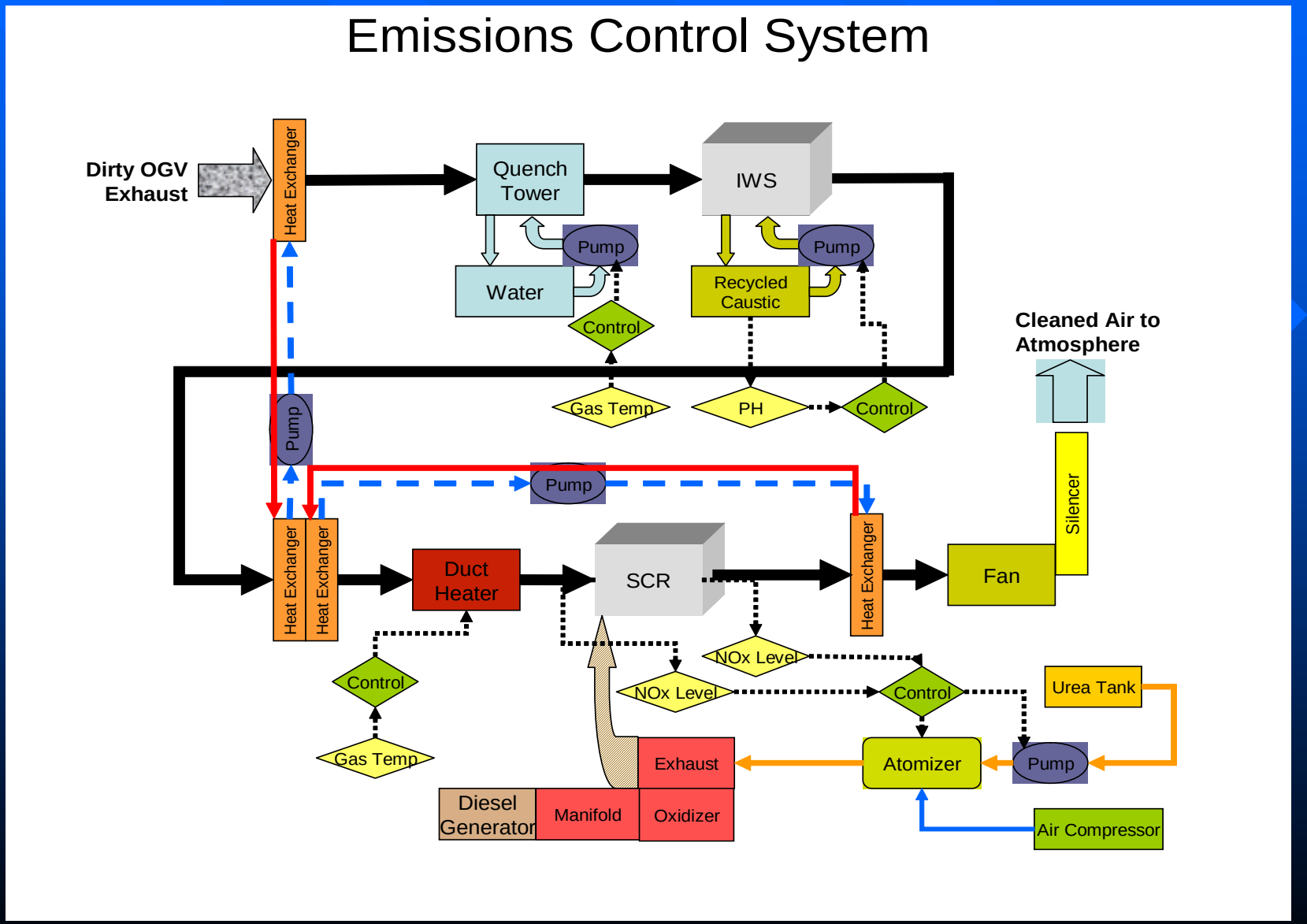
# Bonnet Pre-Docking



# Bonnet-Docked



# Flow Chart for Emission Control



# Air Monitoring Project Objectives

- Determine, through monitoring localized air pollutant impacts from the UPRR facility
- Verify effectiveness of mitigation measure over time
- Improve accuracy of future modeling analysis
- Provide feedback to the public

# Basic Concept Design

- Conduct upwind/downwind monitoring with the rail yard facility as the only source of emissions between monitors
- Utilize continuous monitors, including aethalometers, to select those periods of time when wind blows from upwind to downwind

# Monitoring Strategy

- Utilize two pairs of upwind/downwind site locations
- Minimize non-UPRR emissions sources between each pair
- Optimize pair orientation to the prevailing wind direction
- Optimize time of year with predominance of prevailing wind; summer months

# Technical Advisory Committee for Air Monitoring Project

- Provide technical input and guidance to staff
- Review and comment on documents
- Review project status and offer technical advice regarding problems or issues that may arise
- Meet approximately every other month during the first year, and about 2 times per year for years 2 and 3

# Technical Advisory Committee (cont'd)

**Mr. Bill Loscutoff,** California Air Resource Board

**Dr. Bob Blaisdell,** California OEHAA

**Dr. John Watson ,** Desert Research Institute

**Ms. Catherine Brown,** EPA Region IX

**Dr. Thomas Cahill,** UC-Davis

**Mr. Gary Rubenstein,** Sierra Research

**Mr. Mel Zeldin,** Environmental Consultant

**Mr. Dave Vintze,** Placer County Air Pollution Control District

**Dr. Yushuo Chang,** Placer County Air Pollution Control District

**Mr. John Ching,** Sacramento Air Quality Management District

**Mr. Rudy Eden,** South Coast Air Quality Management District

# Tentative Schedule

- **April**
  - -Install met tower at Roseville rail yard
  - -Accomplish DRI pre-screening study
- **May**
  - -Finalize result analysis from DRI pre-screening study
  - -Complete related document (DAP, SOP)
- **June**
  - -Complete all arrangements for upwind/downwind sites
  - -Begin preliminary co-located monitoring (2 weeks)
- **July**
  - -Install all remaining requirements
  - -Complete calibrations for all equipments
  - -Begin field operations - Target date: July 14, 2005
  - -Continue field monitoring through September 30, 2005

# Summary

- Agreement has a “feedback” loop
- The status of mitigation plan and monitoring project will be reported
- Report will be provided to the Board and public annually